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NEMATODE GALLS ON MOSSES.

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When recently examining specimens of *Porotrichum alopecurum* Mitt., gathered in 1894 at Becky Fall, Lustleigh, South Devon, I was struck by what appeared to be terminal male flowers on the tips of the secondary branches and branchlets, forming hard, yellow, tumid, bud like bodies, on some plants very numerous and conspicuous; in one case I counted as many as fifty on a single stem. The apical position, as well as the fact that the stems were fruiting ones (the species being dioicous) of course precluded the idea that they were male flowers, and on dissection they proved to be bodies of a gall-like nature, containing numerous minute Nematode worms, or *Anguillulidæ*.

Galls of this nature appear to be very uncommon on mosses—I have only once come across them elsewhere among the many thousands of specimens that have passed through my hands in the last twenty years or more: they have recently been described in two papers in *Hedwigia*, for the references to which I am indebted to Mr. A. Gepp. Mönkemeyer published a short article (*Hedwigia*, xli. Beiblatt 22, 1902) on "*Hypnum fluitans* L. mit Anguillulagallen;" and again, within the last few weeks, a more detailed article has appeared by Schiffner (*Hedwigia*, xliv. 218, 1905), "Beobachtungen über Nematoden-Gallen bei Laubmoosen." The former writer describes similar galls on *H. fluitans*, and refers to their occurrence on other *Harpidia*, as noted by Warnstorf, especially on *H. aduncum* Hedw. Schiffner adds considerably to the number of species of moss acting as host-plant to the galls, having found them on several species of *Dicranum*, and, what is curious, most of these occurred in quite dry stations, instead of in the aquatic or moist situations which are the usual habitat for these *Anguillulidæ*. He also detected them on *H. cupressiforme*, where they occurred at the apex of the branches; and he points out that this effectually disposes of the supposition that the galls might originate from male flowers, modified by the infection of the Anguillula. This conclusion is entirely confirmed by the case of the *Porotrichum* now recorded, where the galls all occur at the apex of the ultimate branchlets, where flowers are never produced.

In all probability the Nematode is the same in all these galls, as Schiffner found them to be the same on the various species of *Dicranum*, etc., from which he obtained them; and Mönkemeyer's figures of those in the galls of *H. fluitans* exactly recall those which I obtained from *Porotrichum alopecurum*. Moreover, his description of the alteration in structure produced in the leaves composing the gall in *H. fluitans* agrees exactly with my own observations.

I have on only one other occasion observed anything in the nature of a gall on a moss, *viz.* on a specimen of *Eurhynchium Swartzii* Hobk., gathered in a ditch in Yardley Chase, Northamptonshire, in 1887. The nature of the gall remained at the time undetermined, and the moss was put on one side; but recent examination in the light of the facts described above shows the contents of the galls to be similar, and *Eurhynchium* must be added to the list of those genera already known to be infested by the *Anguillulæ*.